

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for producing a plurality of semiconductor chips [[(20)]], particularly radiation-emitting semiconductor chips, each having at least one epitaxially produced functional semiconductor layer stack[[ (51)]], comprising the following method steps:

- preparing a growth substrate wafer[[ (1)]] substantially comprised of semiconductor material from a semiconductor material system that is in terms of lattice parameters the same as or similar to that on which a semiconductor layer sequence[[ (5)]] for the functional semiconductor layer stack[[ (51)]] is based,
- forming in said growth substrate wafer[[ (1)]] a separation zone[[ (4)]] disposed parallel to a main face[[ (100)]] of said growth substrate wafer[[ (1)]],
- joining said growth substrate wafer (1) to an auxiliary carrier wafer[[ (2)]],
- detaching along said separation zone (4) a portion[[ (11)]] of said growth substrate wafer[[ (1)]] that faces away from said auxiliary carrier wafer[[ (2)]] as viewed from said separation zone[[ (4)]],
- forming on the portion[[ (12)]] of said growth substrate wafer remaining on said auxiliary carrier wafer[[ (2)]] a growth surface[[ (121)]] for subsequent epitaxial growth of a semiconductor layer sequence[[ (5)]]>,
- epitaxially growing said semiconductor layer sequence[[ (5)]] on said growth surface[[ (121)]]>,
- applying a chip substrate wafer[[ (7)]] to said semiconductor layer sequence[[ (5)]]>,
- detaching said auxiliary carrier wafer[[ (2)]]], and
- singulating the composite composed of said semiconductor layer sequence[[ (5)]] and said chip substrate wafer[[ (7)]] into mutually separate semiconductor chips[[ (20)]].

2. (Currently Amended) The method according to claim 1, wherein prior to the application of said chip substrate wafer[[ (7)]], said semiconductor layer sequence[[ (5)]] is structured into a plurality of epitaxial semiconductor layer stacks[[ (51)]] disposed side by side on said auxiliary carrier wafer[[ (2)]].

3. (Currently Amended) The method according to claim 2, wherein at least sidewalls of said epitaxial semiconductor layer stack[[ (51)]] are provided at least partially with passivating material[[ (9)]].

4. (Currently Amended) The method according to ~~at least one of claims 1 to 3~~ claim 1, wherein prior to the application of said chip substrate wafer[[ (7)]], said epitaxial semiconductor layer sequence[[ (5)]] is provided with an electrical contact layer[[ (6)]].

5. (Currently Amended) The method according to ~~at least one of claims 1 to 4~~ claim 1, wherein said separation zone[[ (4)]] is produced by ion implantation.

6. (Original) The method according to claim 5, wherein hydrogen is implanted.

7. (Currently Amended) The method according to ~~at least one of claims 1 to 6~~ claim 1, wherein the portion[[ (11)]] of said growth substrate wafer[[ (1)]] facing away from said auxiliary carrier wafer[[ (2)]] as viewed from said separation zone[[ (4)]] is thermally cleaved along said separation zone[[ (4)]].

8. (Currently Amended) The method according to ~~at least one of claims 1 to 7~~ claim 1, wherein said auxiliary carrier wafer[[ (2)]] is transparent to electromagnetic radiation with wavelengths below 360 nm.

9. (Currently Amended) The method according to ~~at least one of claims 1 to 8~~ claim 1, wherein said auxiliary carrier wafer is transparent to high-energy electromagnetic radiation, particularly laser radiation.

10. (Currently Amended) The method according to claim 9, wherein said auxiliary carrier wafer $[[ (2)]]$  is detached from said semiconductor layer sequence $[[ (5)]]$  or from said semiconductor layer stack $[[ (51)]]$  by a laser liftoff process.

11. (Currently Amended) The method according to ~~at least one of claims 1 to 10~~ claim 1, wherein said auxiliary carrier wafer $[[ (2)]]$  is matched in terms of thermal expansion coefficient to said growth substrate wafer $[[ (1)]]$ .

12. (Currently Amended) The method according to ~~at least one of claims 1 to 11~~ claim 1, wherein said auxiliary carrier wafer (2) is polycrystalline.

13. (Currently Amended) The method according to ~~at least one of claims 1 to 12~~ claim 1, wherein the joint between said growth substrate wafer $[[ (1)]]$  and said auxiliary carrier wafer $[[ (2)]]$  is produced by means of silicon oxide.

14. (Currently Amended) The method according to ~~at least one of claims 1 to 13~~ claim 1, wherein said semiconductor layer sequence $[[ (5)]]$  includes at least one semiconductor layer based on GaN and the material of said growth substrate wafer $[[ (1)]]$  is also based on GaN.

15. (Currently Amended) The method according to claim 14, wherein said auxiliary carrier wafer $[[ (2)]]$  is composed of sapphire and/or AlN.

16. (Currently Amended) The method according to ~~at least one of claims 1 to 15~~

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claim 1, wherein said growth surface[[ (121)]] is prepared for the epitaxial growth of said semiconductor layer sequence[[ (5)]] by etching and/or grinding.